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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

David J. Giesen, et al

ORGANIC ELEMENT FOR ELECTROLUMINESCENT DEVICES

Serial No. 10/729,724

Filed 05 December 2003

Group Art Unit: 1774

Examiner: Dawn L. Garrett

I hereby certify that this correspondence is being deposited today with the United States Postal Service as first class mail in an envelope addressed to Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Deidra L. Mack

Deidra L. Mack

July 28, 2006

Date

Commissioner for Patents
P.O. Box 1450
Alexandria, VA. 22313-1450

Sir:

DECLARATION OF DAVID J. GIESEN
UNDER 37 CFR 1.132

I, David J. Giesen, of the County of Monroe, State of New York, USA, declare as follows

1. I have been trained as a Physical Organic Chemist, having the following educational experience:

1988-1990: University of North Dakota, Grand Forks.

1990-1992: Bachelor of Science Cum Laude.
University of Minnesota, Duluth
Majored in Chemistry and Computer Science

1992-1997: Doctor of Philosophy
University of Minnesota, Twin Cities
Chemistry Graduate Program with Professor Christopher J. Cramer
Thesis: Quantum Mechanical Continuum Solvation Models

2. I am the author or coauthor of 24 publications in the chemical literature.

3. I am currently employed as a Research Scientist by the Eastman Kodak Company in its Research Laboratories in Rochester, New York, and have been employed as a Research Scientist since 1997.

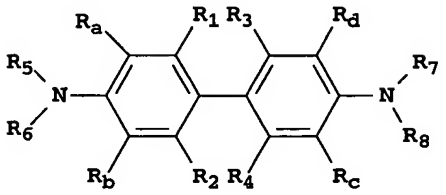
4. I have particular expertise in host and dopant materials in the area of OLED technology.

5. I am a co-inventor in the present application for which this declaration is being filed, and I have read the Office Action dated March 3, 2006, issued in that application, including the references cited in that Office Action.

6. For the purpose of the present invention and pursuant to my direction and control, triplet energy calculations were conducted for several compounds, including Inv-11, using the methods described on p. 42 of the specification. Two tables were prepared to show the triplet energy calculations of the compounds compared to the triplet energy of a phosphorescent dopant.

7. Results are recorded in Table A*, which shows the triplet energies of the three potential hosts as well as the triplet energy of a common dopant, *fac*-tris (2-phenylpyridinato-N, C^2) iridium (III) $Ir(ppy)_3$.

TABLE A*: TRIPLET ENERGY CALCULATIONS FOR HOST AND DOPANT MOLECULES



Compound	Example Type	$R_a - R_d$	$R_1 - R_4$	Calculated Triplet Energy (eV)
Inv-11	Inventive Host	F	F	2.60
C-1	Comparative Host	H	H	2.43
C-2	Comparative Host	F	H	2.30
$Ir(ppy)_3$[1]	Phosphorescent Dopant	-	-	2.55

[1] *fac*-tris(2-phenylpyridinato-N,$C^{2'}$)iridium(III)

In Table A*, Compound C-1 of this Declaration is compound (example II-1, Table 2) of Nakaya, and C-2 is similar to compound (II-1) of Nakaya. Compound Inv-11 is the inventive compound for this application. Compound C-1 contains H at all of the positions of the phenyl groups of benzidine nucleus. Compound C-2 includes fluoro substituents ortho to the amine groups of the benzidine nucleus but not ortho to the linkage between the phenyl group of the benzidine nucleus. The inventive compound, Inv-11, includes at least one substituent which is ortho to the biphenyl linkage. F is found at both the R_a - R_d and R_1 - R_4 positions. The phosphorescent dopant, *fac*-tris (2-phenylpyridinato-N, C^2) iridium (III) ($Ir(ppy)_3$) is the dopant Ir-1 of Matsuura and is also reported in Ariz (col 8, lines 6-66). It can be seen from Table A* that the triplet energy levels of compounds C-1 of Nakaya and C-2 are below the triplet energy of the dopant. Therefore, compound C-1 and C-2 would not be suitable hosts for use with this phosphorescent dopant. Additionally, compound Inv-11 would be a suitable host compounds because the triplet energy of this compound is greater than that of the dopant. The presence of at least one substituent that is ortho to the biphenyl linkage, such as the case of Inv-11, raises the triplet energy level above that of $Ir(ppy)_3$ making Inv-11 a useful host.

8. Further calculations were made to determine the triplet energy of additional compounds as follows: compound I-1, compound I-17, compound I-19, compound I-20, compound I-21, compound I-22, and compound I-28 all of Nakaya. Results are recorded in Table B*, which shows the triplet energies of the compounds.

TABLE B* TRIPLET ENERGY CALCULATIONS FOR HOST COMPOPUNDS OF NAKAYA AND DOPANT MOLECULES

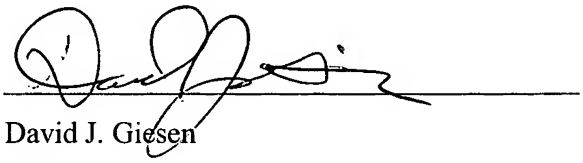
Compound	Calculated Triplet Energy (eV)
I-1	2.47
I-17	2.50
I-19	2.80
I-21	2.64
I-22	2.75
I-28	2.45
$Ir(ppy)_3$[1]	2.55

[1] *fac*-tris(2-phenylpyridinato-N,$C^{2'}$)iridium(III)

In Table B*, Compound I-1 of this Declaration is compound (example I-1, Table 1) of Nakaya, compound I-17 is compound (example I-17, Table 1) of Nakaya, compound I-19 is compound (example I-19, Table 1) of Nakaya, compound 1-21 is compound (example I-21, Table 1) of Nakaya, compound 1-22 is compound (example I-22, Table 1) of Nakaya, and compound 1-28 is compound (example I-28, Table 1) of Nakaya. The phosphorescent dopant, *fac*-tris (2-phenylpyridinato-N, C^2) iridium (III) ($Ir(ppy)_3$) is the dopant Ir-1 of Matsuura and is also reported in Ariz (col 8, lines 6-66). It can be seen from Table B* that the triplet energy levels of compounds I-1, I-17, and I-28 of Nakaya are below the triplet energy of the dopant. Therefore, these compounds would not be suitable host compounds for use with this phosphorescent dopant. Compounds I-19, I-21, and I-22 of Nakaya all have triplet energy above that of the dopant. Therefore, these compounds would be suitable host compounds for use with this phosphorescent dopant. The compounds of Nakaya were not selected on the basis of their ability to be a suitable host compounds. The data in Table B* demonstrates that the Nakaya referenced fails to teach or suggest selection of suitable compounds for use with a dopant through the use of triplet energy calculations.

9. All statements made herein of my knowledge are true, and all statements made on information and belief are believed to be true. These statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signed this 27 th day of June, 2006



David J. Giesen